Navisworks 2013 new features

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Navisworks Gauss

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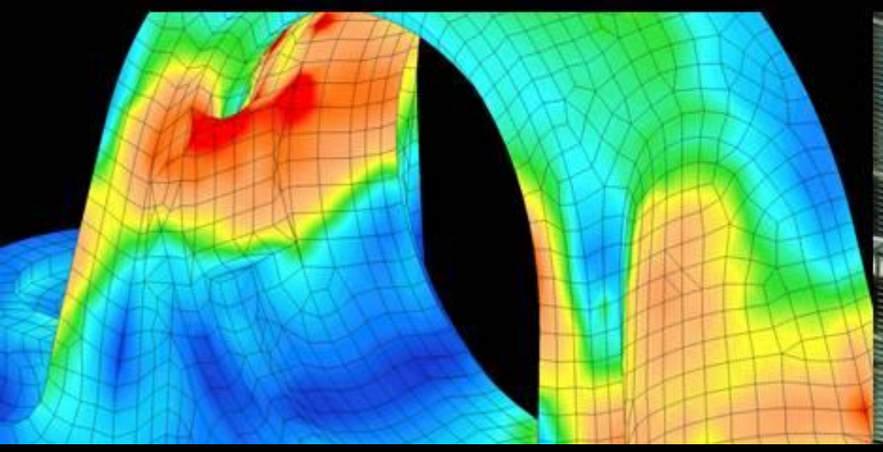
Agenda

- Navisworks Gauss Features
- APIs
  - The Rice (must do)
  - The Wine (value add)



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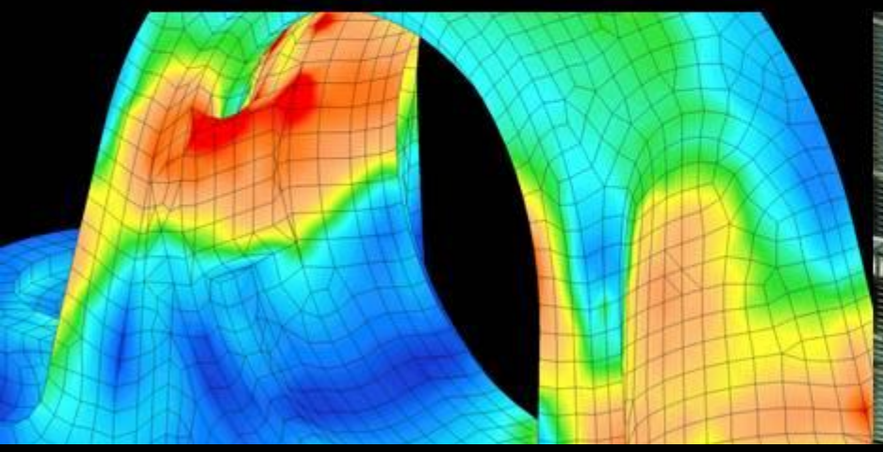
Today’s Agenda

- Navisworks Gauss Features
- APIs
  - The Rice (must do)
  - The Wine (value add)
- Timing



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Areas of Product Enhancement

- 4D / Scheduling
- 5D / Cost
- Location / Orientation
- Coordination
- User Experience
- Interoperability

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4D / Scheduling

- **Edit Parent / Child Relationships**
  - Fully editable task hierarchy
- **Improved Task / Geometry Linkage**
  - Drag and drop objects and tasks
- **Export WBS to Scheduling Application**
  - Export to Primavera, Asta, MS Project via ProjectXML
- **Updated Data Source Support**
  - Microsoft 2010
  - Asta 11
- **Improved User Interface**

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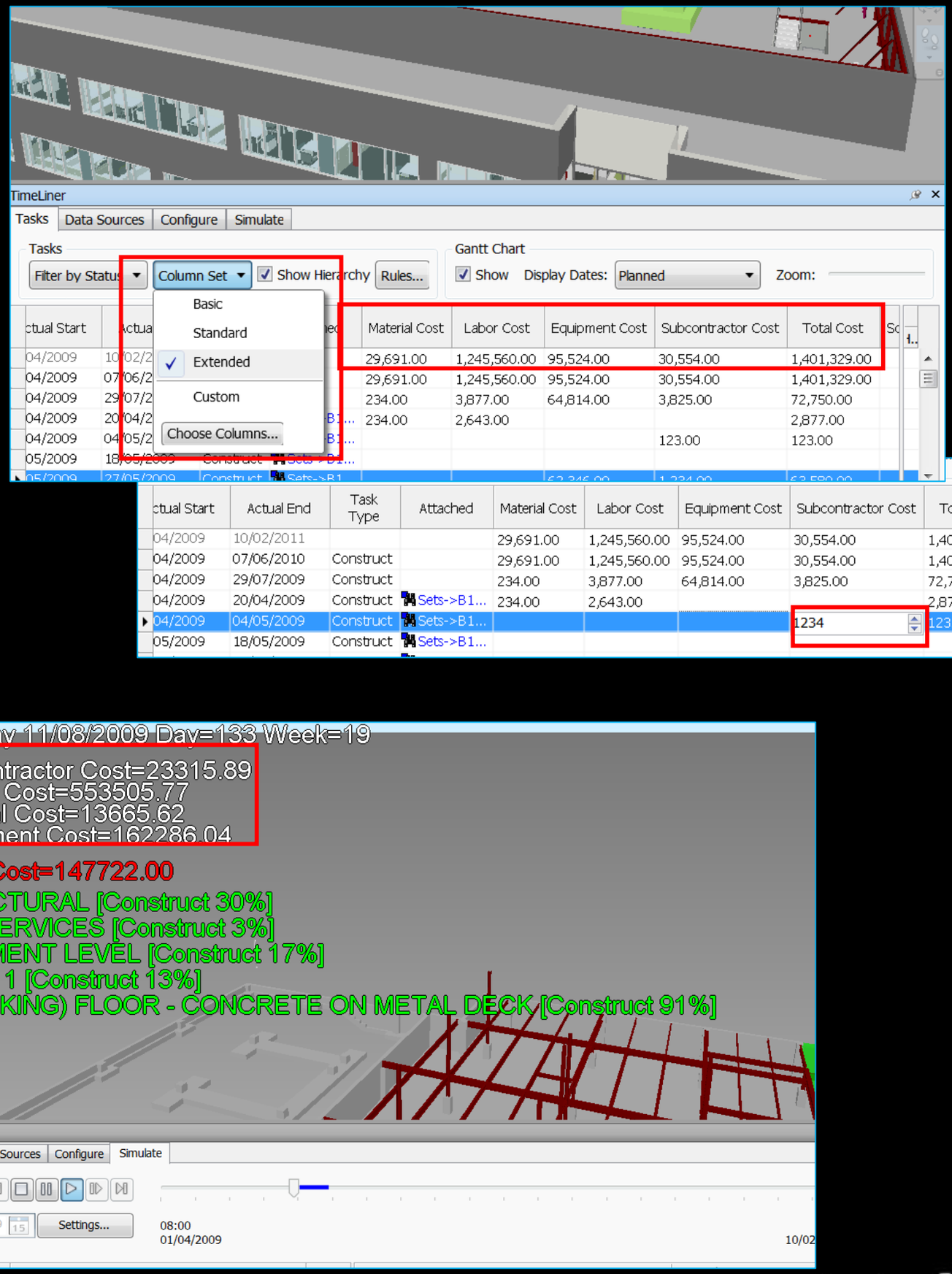
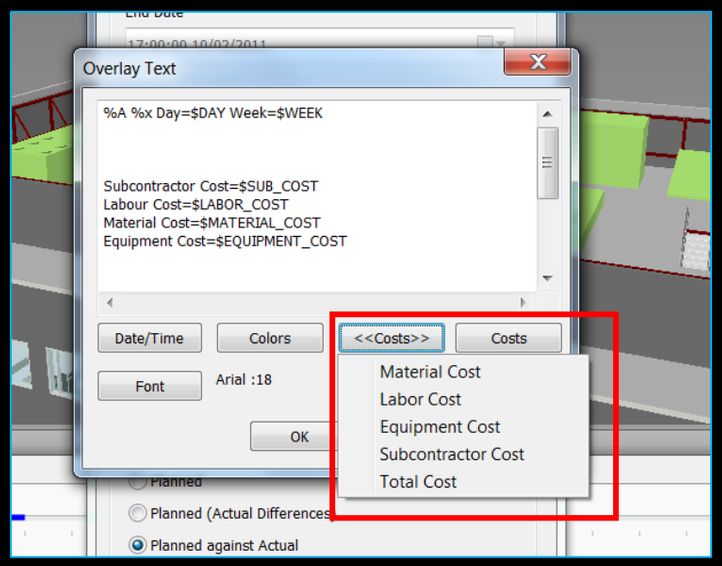
5D / Cost

- **5D Simulation**
  - Add or link costs to tasks: ‘cost-loaded schedule’
  - Accumulated cost reporting





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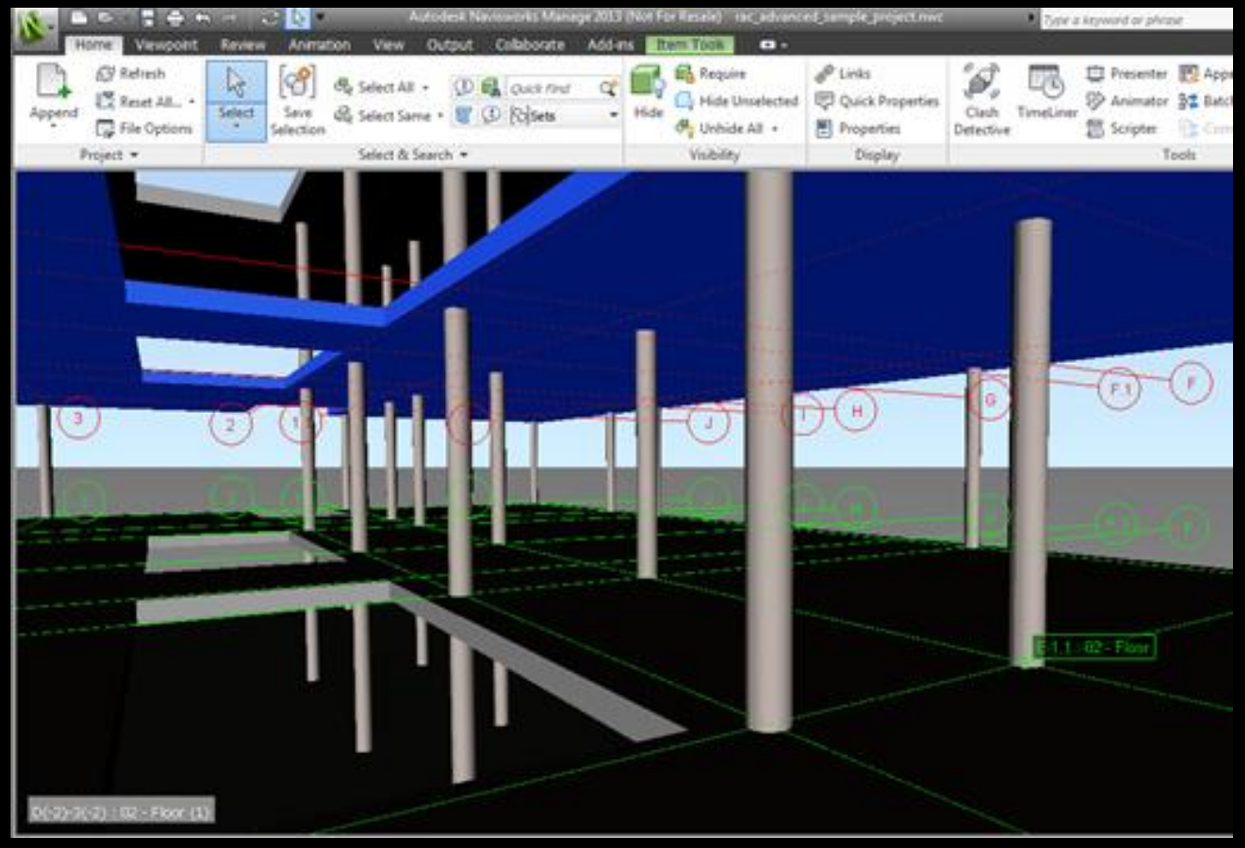
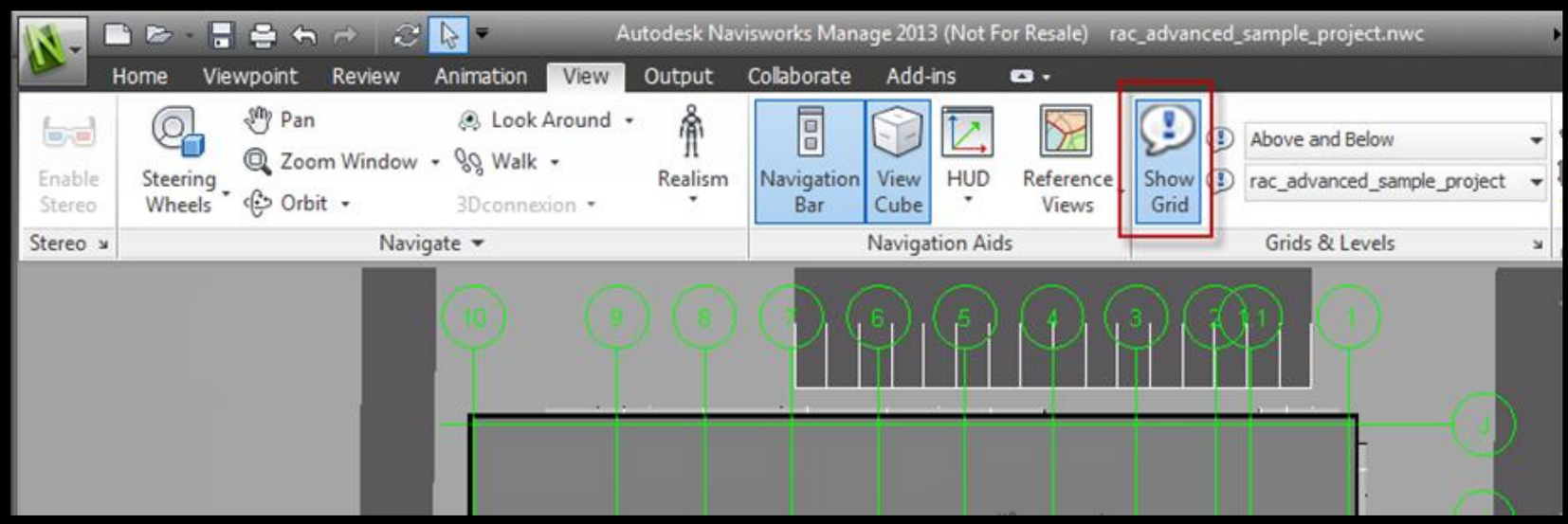
Location / Orientation

- **Gridline Representation**
  - Import grids from Revit
  - Utilize grids when viewing / analyzing / reporting
- **Level Representation**
  - Import levels from Revit
- **Grid / Level-based Positional Readout**





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Coordination

- **Clash support for grids and levels**
  - Clash results located by grid reference
- **Clash API**
- **Improved Clash Detective interface**

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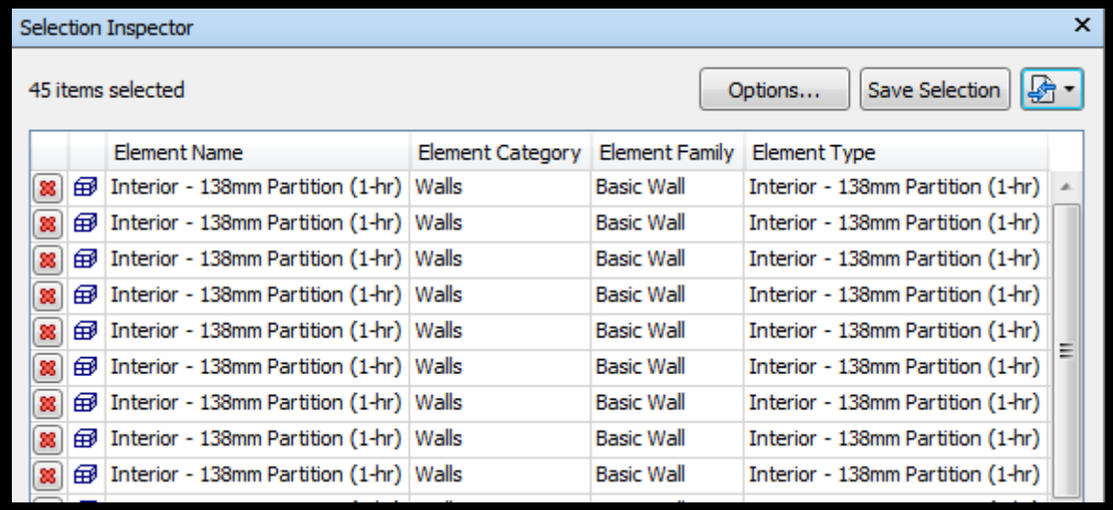
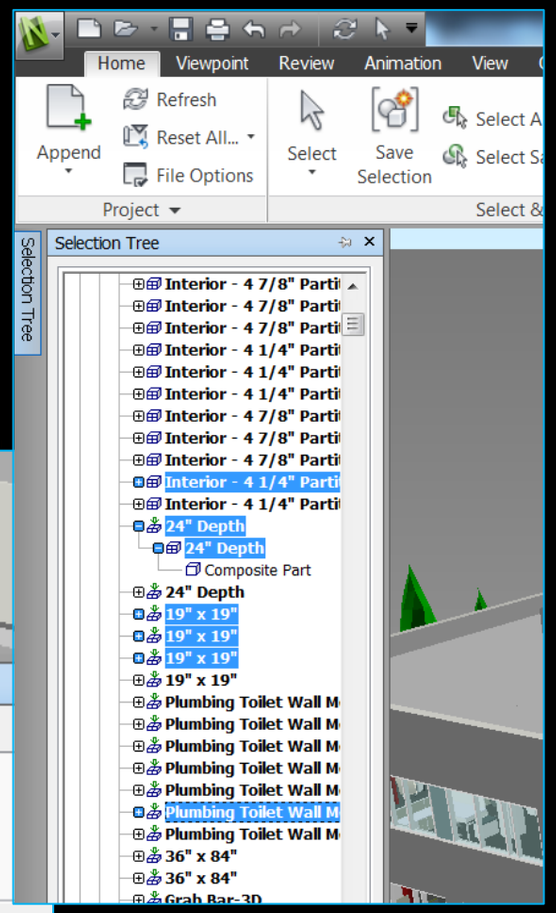
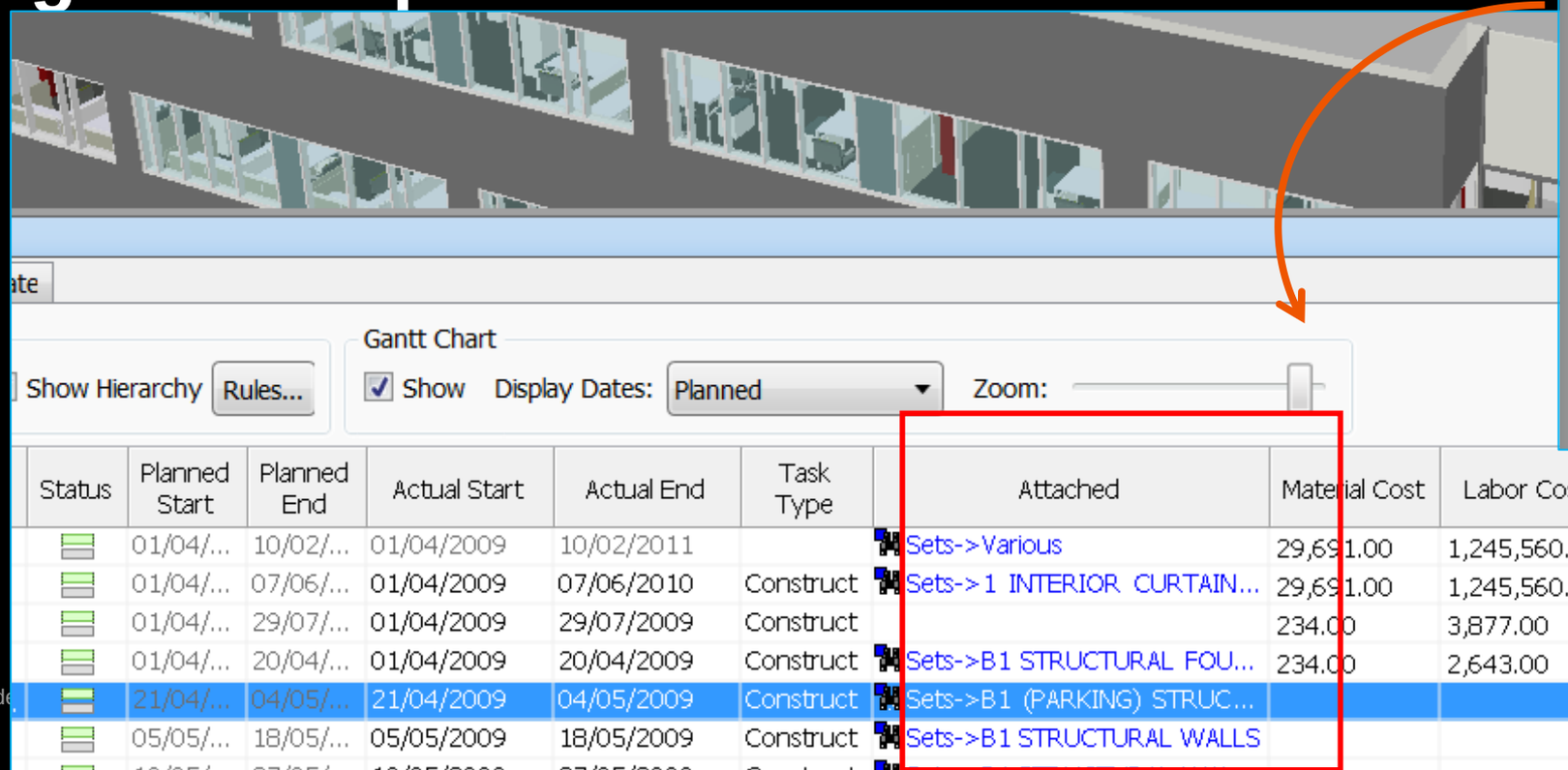
User Experience

- Improved Sets Window
- Provide Selection Inspector
- Improved Import / Export Workflow
- Drag and Drop







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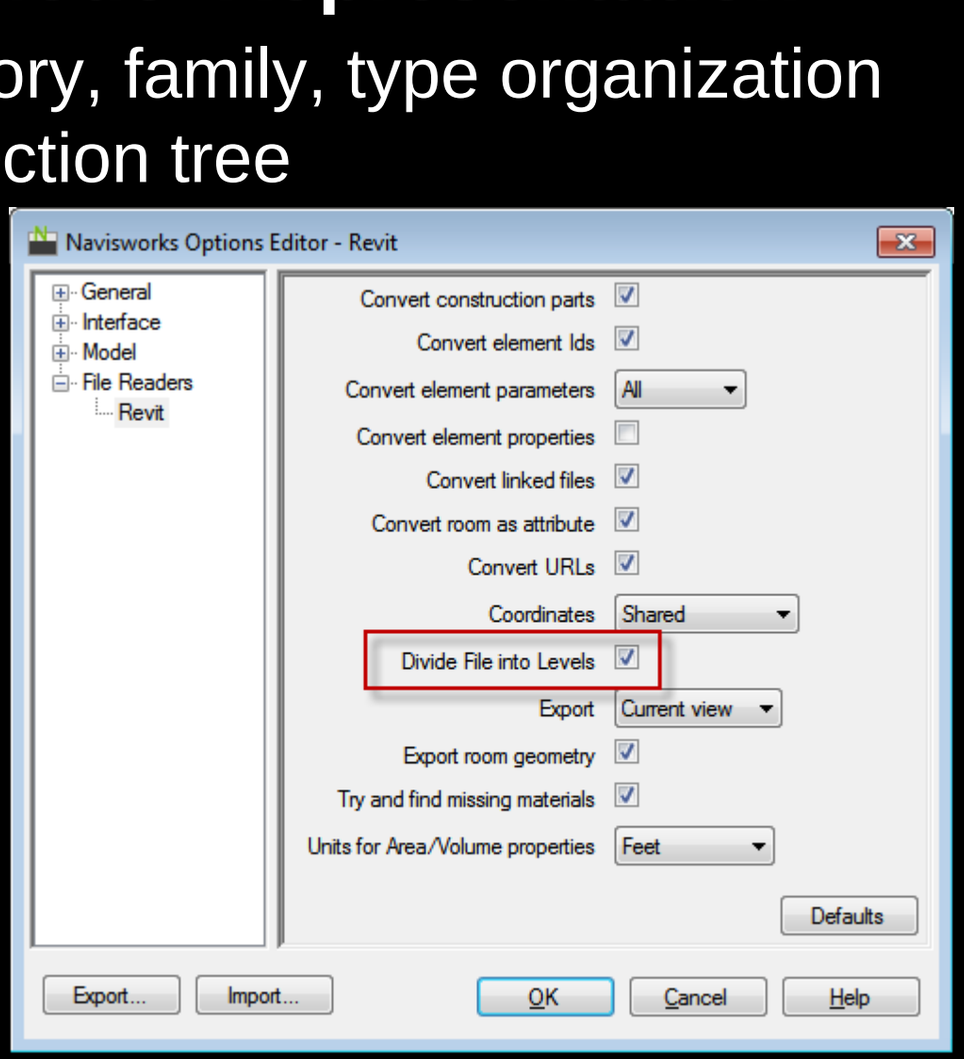
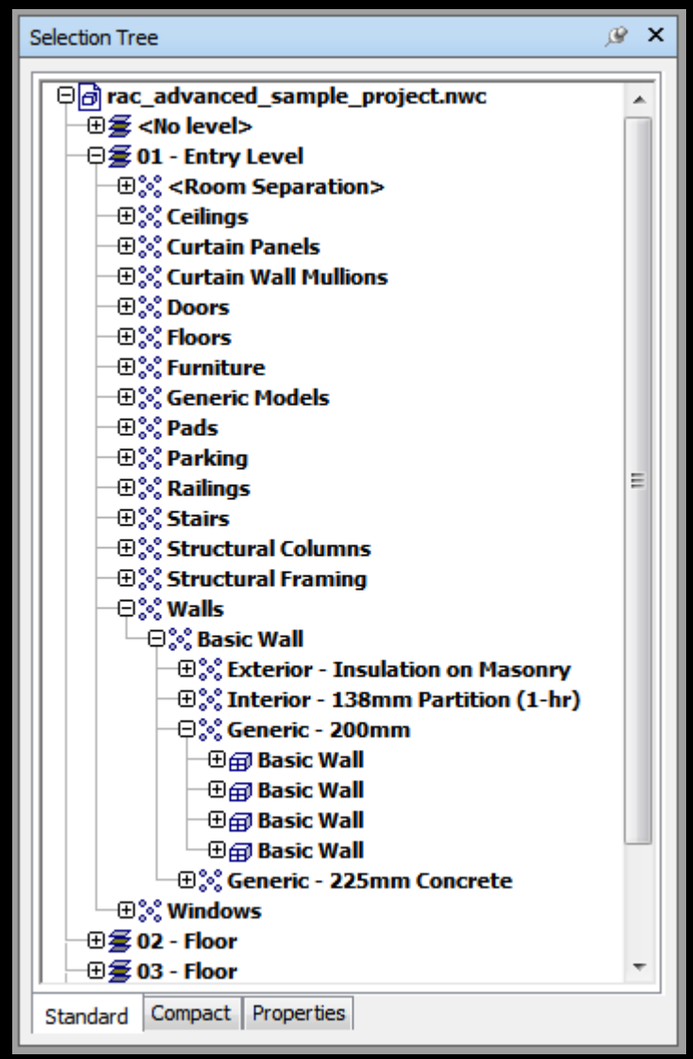
Interoperability

- **.RVT Support**
  - Native support for Revit format
- **Revit Model Representation**
  - Category, family, type organization in selection tree





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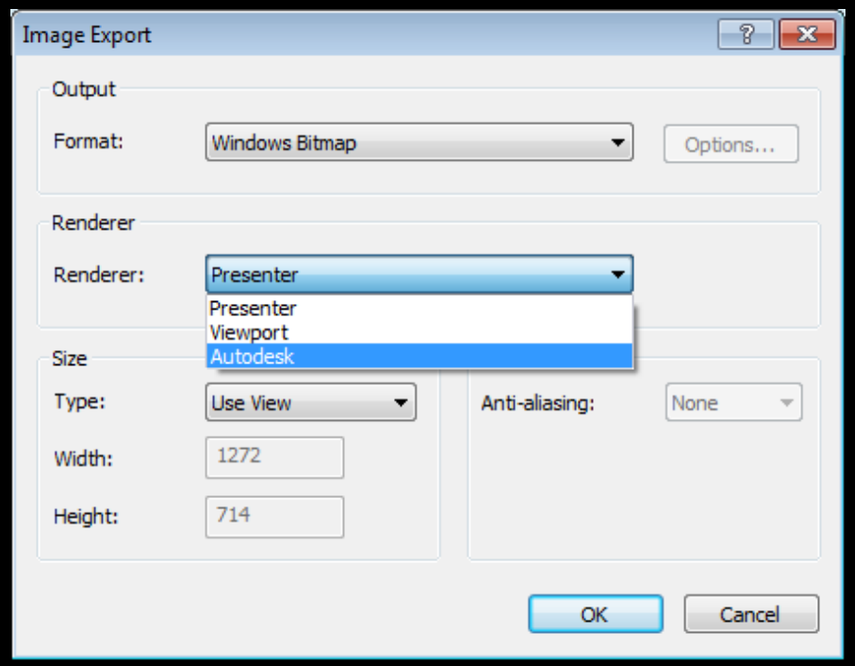
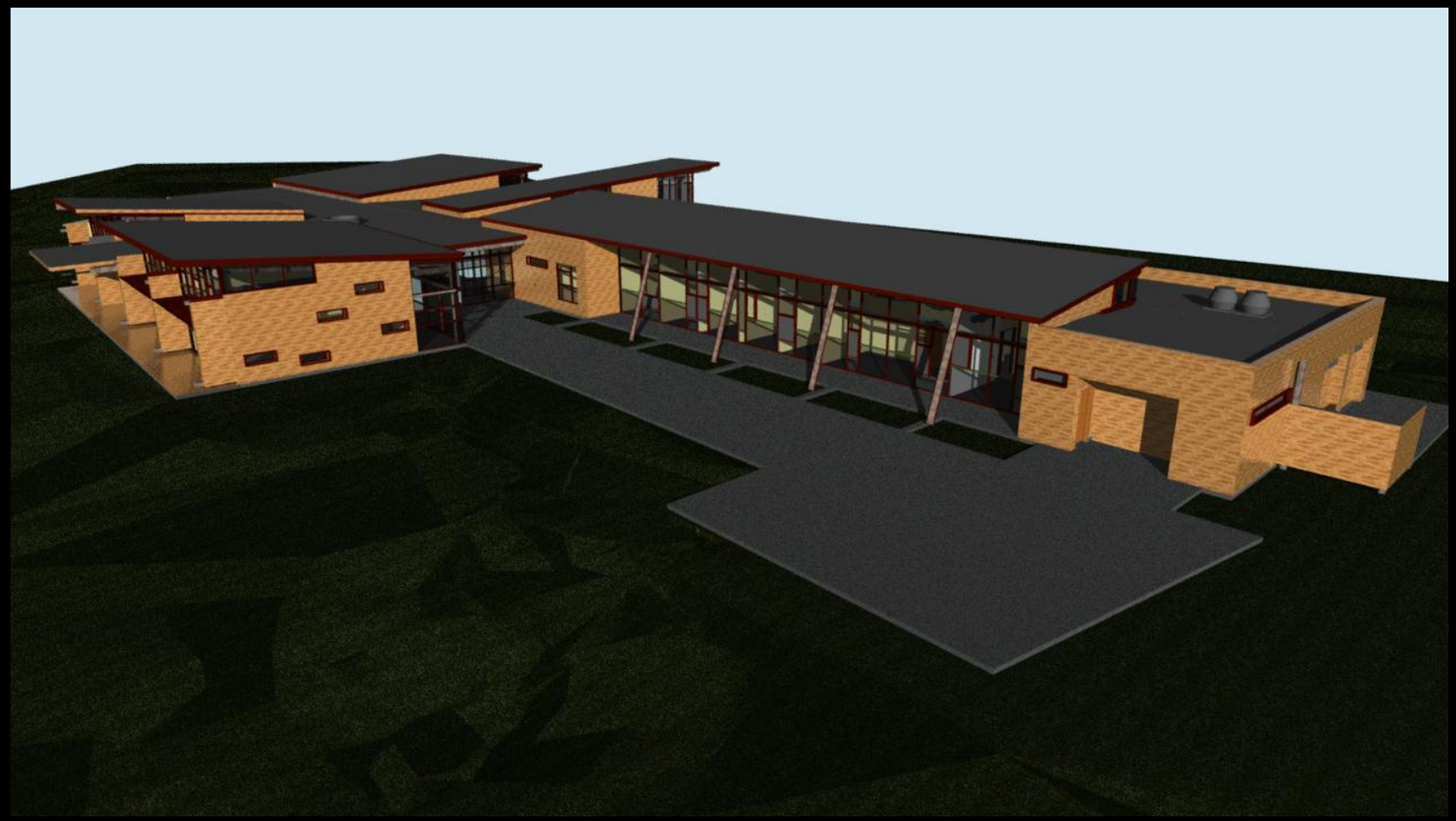
Interoperability

- **OGS Improvements**
  - Improved consistent materials performance
  - RapidRT rendering
- **SolidWorks, Catia, NX, JT format support**





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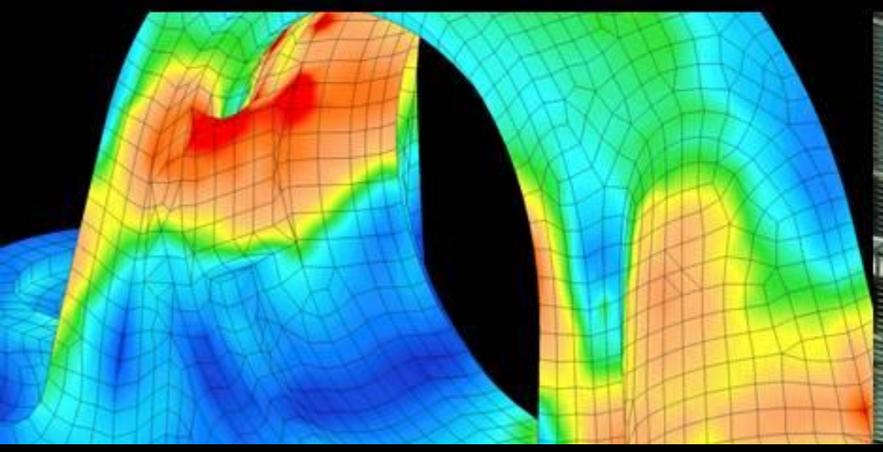

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Navisworks .NET API

- Introduced in 2011
- Continues to expose more through .NET API in 2013

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Navisworks .NET API

- Migration should be straightforward.
- No intended changes to the existing classes and methods.
- Not binary compatible – you will need to rebuild your app with 2013 assemblies.

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Navisworks .NET API

- Enhancements

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Clash Detective API

- For 2013, Clash Detective has an all new .NET API.
- Most future development work will happen here rather than in the COM API.
  - Api.Clash.ClashTest
    - Ability to define Tests.
  - Autodesk.Navisworks.Api.Clash.DocumentClashTests
    - Ability to run Tests using TestsRunTest.
  - Api.Clash.ClashResult
    - Analyse and edit Test Results.

Refer to SDK sample: **\api\net\examples\PlugIns\ClashDetective**

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Timeliner

- Tasks now have a concept of cost. Data Sources can now import this cost information.
  - **Api.Timeliner.TimelinerTask**
    - Fields have been added to represent common costs.
  - **Api.Timeliner.DocumentTimeliner**
    - Costs can be automatically summed from children using **TasksSummaryRecalculateCosts.**
- **Api.Timeliner.DocumetTimeliner**
  - Sorting of Tasks using TasksSort.

Refer to SDK sample: **\api\net\examples\PlugIns\Timeliner**

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Viewpoints and Camera

- Expose Current Viewpoint, Saved Viewpoints and Camera.
- Current ViewPoint
  - **DocumentCurrentViewpoint**
- Saved ViewPoint Collection
  - **Document.SavedViewpoints**
- Saved ViewPoint
  - **SavedViewpoint**
  - derive from GroupItem
    - common saved view point
    - group of saved viewpoint FolderItem
  - can know the current saved viewpoint
  - **SavedViewpoints.CurrentSavedViewpoint**
- Camera
  - **ViewPoint**
  - Ability to manipulate position, view direction and other Camera properties
  - Provide some methods of Quaternion （**Rotation3D**）

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Pick methods

- **View.PickItems**

  Provide the selecting method with given rectangle or point.

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Grids and Levels Display

- The display of Grids and Levels can be controlled.
  - **Api.DocumentParts.DocumentGrids**
    - Controls which Grid System is displayed.
    - Controls which Grid Lines are displayed.
  - **Autodesk.Navisworks.Api.GridsOptions**
    - Display options for Grid Systems. Including colour, render mode and x-ray mode.

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Comments System

- Api.DocumentParts.DocumentCurrentComments
  - Exposure to allow plugin writers to use built in Comments window.
  - Notifications when these comments change.

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Drag Drop

- Ability to drag the Current Selection from the Main Window and the Selection Tree.
  - Available in main product.
  - allow in developer applications that use Viewer controls.
    - ViewControl. AllowCurrentSelectionDrag
    - ApplicationDragDrop

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Navisworks COM API

- Continued support in 2013.
- Most new features targeted by .NET API.

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Navisworks COM API

- Migration should be straightforward.
- Intent is that plugins are binary compatible.
- No intended changes to the existing interfaces.
- You will need to use new GUIDs for ActiveX controls and Automation

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Navisworks COM API

- Enhancements

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COM API: Samples ported to C#

- COM Samples have been ported to C#.
  - Modern development environment.
  - Can be used for both 32-bit and 64-bit development.
  - Visual Basic 6.0 samples are no longer supplied.

- On 64-bit OS, we provide a dummy 32-bit ‘Integrated’ ActiveX control. This is to allow use inside the 32-bit only Visual Studio 2010 designer. (refer to api\COM\documentation\ COM Interface.pdf)

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Navisworks NwCreate API

- Continues to expose more through NwCreate API in 2013.

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Navisworks NwCreate API

- Migration should be straightforward.
- No intended changes to the existing classes and methods.
- Intent is that API is binary compatible. You should not need to rebuild your app with 2013 libraries.

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Navisworks NwCreate API

- Enhancements

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Grids and Levels

- The NwCreate API now support the creation of Grids and Levels. See the following methods for a starting point:
  - **LiNwcGridSystemCreate**
  - **LiNwcGridLevelCreate**
  - **LiNwcGridLineCreate**
  - **LiNwcSceneAddGridSystem**

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Additional Sample

- New NwCreate API Sample to demonstrate the advanced capabilities of the API.
  - Installed at .\api\nwcreate\example\\multisheetloader.
  - 2D geometry creation.
  - Multi-sheet file support.
  - Adding GUIDs to uniquely identify geometry nodes.
  - Creating of complex 3D geometry.
  - Grids and Levels.

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